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MISA

SEWER USE

STOPPING WATER POLLUTION AT ITS SOURCE

MISA

Municipal/Industrial Strategy for Abatement

CONTROLLING INDUSTRIAL DISCHARGES TO SEWERS

Environment
Ontario

Jim Bradley
Minister

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CONTROLLING INDUSTRIAL DISCHARGES TO SEWERS

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MINISTER'S INTRODUCTION

Our waterways are a precious resource which society has abused.

This discussion paper outlines proposals to greatly reduce the industrial contaminants entering our lakes and rivers through municipal sewer systems. It completes the Municipal-Industrial Strategy for Abatement (MISA), which is already addressing toxic pollution from industries which discharge directly to waterways.

Sewage treatment plants are designed to deal with human -- not industrial -- waste. Therefore, to protect the environment from industrial wastes discharged to sewers, we must stop this pollution at the source. The system proposed in this paper calls for thousands of industrial users of sewers to eliminate toxic contaminants from their liquid waste before it is dumped into the community's sewer system.

Under these proposals, industries could comply by pre-treating or recycling their toxic wastes, or changing production processes or substituting raw materials to reduce or avoid the generation of toxic waste. In short, each industry could adopt the most efficient method to reduce its toxic contaminants to the level attainable by the best available pollution control technology which is economically achievable (BATEA).

This requirement would be initially applied to 22 industrial sectors. These BATEA levels would be periodically re-examined to see if technological advances allow standards to be tightened, with the ultimate goal being the virtual elimination of persistent toxic substances from discharges to sewer systems.

Industries not yet covered under an industrial sector BATEA limit, and industries which discharge significant quantities of conventional pollutants, would have to meet local limits designed to protect the receiving environment or the treatment processes of the local STP.

The proposal calls for a local levy on sewer users to cover the costs of municipal enforcement of the abatement program. In cases where a municipality lacks the expertise to enforce the program, the ministry would perform the service on a charge-back basis.

My Ministry would randomly audit both industrial and municipal performance, and perform any testing deemed appropriate to ensure the integrity of the program.

The Ministry would require municipalities to publish annually in local newspapers the names of any violators, and the status of actions designed to bring them into compliance.

Whenever an industry is out of compliance, the municipality or the Ministry could prosecute. Municipalities which fail to enforce the sewer dumping law may find industrial toxic contaminants flowing through their STPs into the environment, making them vulnerable to prosecution by my Ministry for not complying with MISA's direct discharge limits.

I invite all environmentally concerned Ontarians and interested parties to scrutinize these proposals in detail, and write to me with any criticisms, suggestions and comments.

We need your help to formulate the most effective possible program to protect our waterways.

MOT DU MINISTRE

Nos cours d'eau sont des ressources de valeur dont notre société n'a pas su prendre soin.

Pour remédier à la situation, le document que voici propose des moyens de diminuer les substances polluantes que les industries y déversent par la voie des réseaux d'égouts municipaux. Ces mesures viennent compléter la Stratégie municipale et industrielle de dépollution (SMID), programme visant à enrayer les polluants toxiques que ces industries rejettent directement dans nos lacs et rivières.

Les stations d'épuration sont destinées à traiter les matières de vidange et non les déchets industriels. Aussi si nous voulons protéger l'environnement et empêcher que ces derniers ne soient déversés dans les égouts, nous devons arrêter la pollution à la source. Grâce à la formule que nous proposons dans les pages qui suivent, des milliers d'usagers industriels seraient tenus de retirer les polluants toxiques de leurs déchets liquides avant de vider ceux-ci dans les canalisations.

Pour y parvenir, les industries auraient le choix entre plusieurs possibilités : prétraiter ou recycler leurs déchets toxiques, ou encore modifier leurs procédés de fabrication ou remplacer leurs matières premières de façon à ne pas produire de déchets toxiques du tout, ou du moins à en réduire le volume. Bref, chaque industrie pourrait adopter la méthode qu'elle juge la plus efficace pour diminuer les polluants au moyen des techniques de dépollution les plus évoluées et les plus abordables.

Au début, 22 secteurs industriels seraient visés par les dispositions. Les seuils que permettent d'atteindre les techniques retenues seraient revus périodiquement pour déterminer si les progrès de la science autorisent le resserrement des normes, l'objectif ultime étant d'éliminer à toutes fins utiles les substances toxiques persistantes qui sont déversées dans les réseaux d'égouts.

Les industries auxquelles un seuil n'a pas encore été fixé ainsi que celles qui produisent des quantités considérables de polluants classiques seraient tenues de respecter les limites ponctuelles destinées à protéger le milieu récepteur ou les procédés de la station d'épuration locale.

Aux termes des propositions, une taxe locale serait prélevée auprès des usagers des réseaux d'égouts en vue de couvrir les frais qu'auraient à assumer les municipalités pour l'application du programme de dépollution. Si toutefois telle ou telle municipalité ne disposait pas des compétences requises pour exécuter le programme, le Ministère s'en chargerait moyennant recouvrement des frais.

Le ministère de l'Environnement vérifierait au hasard le rendement des industries et des municipalités, et il effectuerait les analyses qu'il estime nécessaires pour assurer l'intégrité du programme.

Il obligerait par ailleurs les municipalités à publier chaque année, dans les journaux locaux, le nom des contrevenants et l'état des actions visant à leur faire respecter les dispositions.

Chaque fois qu'une industrie aurait violé celles-ci, la municipalité ou le Ministère pourrait la poursuivre en justice. Par ailleurs, les municipalités qui n'appliquent pas la loi sur les déversements risqueraient de se trouver en présence de polluants toxiques industriels qui vont se rejeter dans leurs stations d'épuration et, de là, dans l'environnement; elles seraient donc passibles elles aussi de poursuites de la part du Ministère pour ne pas avoir respecté les limites imposées par la SMID au chapitre des déversements directs.

J'invite ceux et celles qui se soucient de l'environnement et toute autre partie intéressée à examiner les propositions minutieusement et à me faire part de leurs critiques, de leurs suggestions et de leurs commentaires.

Seul votre concours nous permettra d'élaborer un programme réellement efficace pour protéger nos cours d'eau comme il se doit.

Jim Bradley

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1.0 THE NEED FOR A SEWER USE CONTROL PROGRAM

1.1 Pollutants and the Sewage Treatment System

Ontario's 407 municipal sewage treatment plants process an average of 5,345,000 cubic meters of wastewater a day. This volume includes sanitary wastes from approximately four million households, and the chemical wastes from thousands of industrial establishments. Almost one-third of the wastewater received by sewage treatment plants (STPs) is discharged by industry.

Industrial effluent contains most of the metal and organic toxic compounds found in sewage. With these toxics present in their effluents, industrial discharges pose several problems for the environment and the effective operation of the sewage treatment plant.

Pass-Through of Toxic Pollutants: Because sewage treatment facilities are not designed to remove toxic pollutants, many of these contaminants pass untreated or partially treated into waterways. This phenomenon, called "pass-through", is a major source of pollution rendering waterways unsuitable as a supply of drinking water and as a recreational resource. It can also kill fish and create other adverse health and environmental conditions.

Interference with STP Operation: Toxic contaminants discharged to sewers can interfere with the normal cleansing operation of sewage treatment plants. The toxic effect of metals on bacteria, for example, can interfere with both primary and secondary treatment systems. In primary treatment of sanitary sewage, solids are usually removed by sedimentation. The resultant sludge is then treated in digesters using bacteria. Toxic metal compounds can destroy these bacteria or inhibit their reproduction, thereby disrupting the sludge treatment process and producing sludges that cannot be disposed of without further treatment.

A mix of bacteria is also used in secondary treatment of wastewater to remove organic wastes. If toxic pollutants destroy or inhibit the bacteria at this stage, the secondary treatment system will not remove pathogenic organisms or much of the remaining organic material.

Conventional pollutants, such as biodegradable wastes and suspended solids, can also upset the operation of the STP. A sudden surge of a large amount of conventional pollutants to the sewer system may overload the treatment plant resulting in untreated or partially treated wastewater passing to the environment.

Overflows and By-Passes: In many older communities in Ontario, storm sewers and sanitary sewers are not separated. These combined sewers carry all domestic wastes, industrial wastes and stormwater. During periods of rainfall or snowmelt, wastewater augmented by stormwater may exceed the capacity of the sewer system and overflow untreated to rivers and lakes before reaching the treatment plant. In some cases, municipal authorities must by-pass this excess volume of wastewater to the environment to prevent sewer back-up and avoid structural damage to STPs.

Through its LifeLines funding program, the ministry is working with municipalities to undertake studies and capital works to correct these infrastructure problems.

Sewer rehabilitation will minimize the occurrence of toxic-contaminated overflows and by-passes to the environment.

Sludge Contamination: Some of the toxic compounds that are removed during treatment remain in municipal wastewater sludge. The contamination of sludge by high levels of toxic compounds from industrial discharges prohibits the municipality from using the soundest disposal methods.

Uncontaminated sludges are applied to agricultural land as a fertilizer or soil conditioner. This is a beneficial use of a material which otherwise would be disposed of as waste. Contaminated sludges, however, are not suitable for such use, as the crops or pasture grasses take-up the contamination and may become unsafe for human or animal consumption.

Toxic-contaminated sludge disposed of in landfill may pollute adjacent ground and surface water. Incineration of contaminated sludge may release toxic pollutants to the atmosphere.

Corrosion, Explosion and Fire: Highly acidic or caustic industrial wastes can corrode piping and equipment in both the sewer lines and the sewage treatment plant, causing disruptions in service and leakage of raw sewage. Eventually, sewer lines and pumping stations must be replaced due to corrosion. Some industrial wastes contain volatile compounds and fuels, such as benzene and gasoline which may explode or burn in the sewage treatment system threatening workers and causing damage.

Worker Hazards: Industrial wastes discharged to sewers can also result in the release of poisonous gases posing a threat to the health of sewage treatment plant workers. This threat may occur when highly acidic wastes combine with other wastes in the collection system. For example, wastes from electroplating often contain traces of cyanide. If the sewage is acidic, a reaction resulting in the formation of highly toxic hydrogen cyanide gas may occur. Industrial discharges may also cause burns, and skin irritations to workers. Long-term exposure to volatiles and other toxics in the waste also pose additional health risks to workers.

1.2 Legal and Administrative Problems

Ontario's current system to control industrial discharges to sewer systems has evolved over the past fifty years. Recently, this system of control has come under criticism from several quarters. These concerns are summarized below.

Voluntary Enforcement: Currently, the responsibility for adopting and enforcing a sewer use control program rests with municipalities. Municipalities are under no direct provincial requirement to control discharges to sewers. This voluntary situation has led to a number of discrepancies across the province. A small number of municipalities do not have a by-law controlling sewer use; of the majority that do, the stringency of control varies widely.

Inadequate By-Laws: Most municipal by-laws controlling industrial discharges to sewers are based on a model by-law developed by the ministry and the Municipal Engineers Association in 1975. The discharge limits in the model reflect average conditions in sewage treatment systems in Ontario municipalities. No method has been provided to tailor the model sewer use by-law to address the problem discharges in a specific municipality. Furthermore, most of the limits in the model are designed to control the discharge of conventional pollutants and some metals.

Resource Limitations: The implementation and enforcement of a municipal sewer use by-law depends on adequate staff and resources, as well as the commitment of the municipality. As these factors vary from one municipality to another, enforcement of the by-law has varied across the province. This has resulted in an inequitable and inconsistent system to control discharges to sewers.

Limited Provincial Involvement: Currently, the Ministry of the Environment's only involvement with municipal sewer use control programs is in the development of a model sewer use by-law which municipalities may adopt. The ministry does not have adequate regulatory authority to ensure municipalities are implementing and enforcing a sewer use control program. Also, the ministry lacks any formal power to allow public access to information on all aspects of the municipal program.

1.3 Public Comment on Sewer Use Control

In the White Paper announcing the MISA program, the ministry stated that industries discharging to sewer systems may be required to pre-treat their wastewaters. Pre-treatment requires the adoption of process changes or the installation of pollution control equipment which will remove contaminants from wastewaters before they are discharged to the sewer system. The comments received during the subsequent public review strongly supported the imposition of controls, including pre-treatment, on these indirect dischargers to Ontario's waterways.

Specific comments advised the ministry to adopt a long-term goal of virtually eliminating toxic discharges to sewers because sewage treatment plants were not designed to treat these contaminants. Others pointed out that most municipalities are incapable of enforcing even a minimal list of priority pollutants through existing by-laws. Finally, some submissions called for the application of discharge limits requiring indirect dischargers to reduce toxic discharges to the level attainable by the best available technology that is economically achievable. These discharge limits should be applied in parallel with limits for sewage treatment plant effluents.

In its response to these comments, the ministry adopted a staged approach to develop a sewer use control program that would reduce toxic contaminants discharged to the sewer system. The various alternatives to sewer use control would be explored, and the best program would be chosen.

2.0 FORMULATING A CONTROL PROGRAM

2.1 Background and Program Principles

To determine which sewer use control program would best protect Ontario's waterways from pollution, the Ministry of the Environment reviewed a range of alternatives and viewpoints. In February of 1987, the ministry engaged an Ontario consulting firm, M.M. Dillon Ltd., to conduct an independent review of sewer use control programs in sixteen jurisdictions around the world. The study was carried out in two phases; both are now complete and have been released to the public.

In phase one, the consultant evaluated the various control programs on the basis of three criteria: compatibility with MISA's goal of virtual elimination of persistent toxic substances from discharges; compatibility with MISA's methods of establishing control limits, and compatibility with Ontario's jurisdictional framework. This evaluation narrowed the control programs down to a short list. Phase two analyzed the short list of control programs based on environmental, economic, legislative and administrative factors. This analysis identified the sewer use control program now in place in the United States as the most suitable option for consideration in Ontario.

In addition to these studies, ministry staff have considered an independent report by the Canadian Environmental Law Research Foundation, still in draft form, which makes specific recommendations on the sewer use control program. Ministry staff also visited municipalities, United States Environmental Protection Agency Offices, and environmental regulatory authorities in many Great Lakes states and Canada. They have also reviewed submissions from the public, other provincial ministries, the federal government, municipal governments, and industrial associations.

From this review, the ministry formulated five principles which constitute the foundation of the proposed MISA sewer use control program. They are: control indirect dischargers at the source;

set provincial discharge limits for industrial sectors at levels that can be attained using the best available technology which is economically achievable (BATEA)*; apply more stringent discharge limits on a site-specific basis where necessary; require municipalities to act as the first line of enforcement for the sewer use control program; and involve the public in both program development and implementation.

2.2 Rationale for Control at Source

Control at source involves a number of measures to reduce the discharge of contaminants. These include manufacturing process changes, substitution of raw materials, recycling of waste by-products, and treatment prior to discharging to the sewer system.

Treatment of toxic-contaminated wastewater at each industrial site will allow the use of chemical-specific abatement and control measures -- something that STPs, as the treatment point of vast quantities of combined wastes cannot provide.

At the plant site, process streams can be separated to isolate wastewater contaminated with toxics. Chemical-specific recovery or treatment techniques can then be applied. As result, a higher percentage of toxics will be either recovered, degraded or removed for safe disposal in the form of sludge.

One problem posed by combined sewer overflows and by-passes can also be addressed with treatment at source. Fewer toxics discharged to the sewer system will reduce the amount of toxics in wastewater overflowing to the environment during periods of heavy rainfall.

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* For further information on BATEA, including a discussion of how it's derived, please consult the MISA White Paper, June 1986.

Treatment at source also allows for more environmentally sound disposal of sludge. Specific technology designed for the disposal of toxic-contaminated sludges are available. These cannot be applied economically to large volumes of mixed sludge from STPs, but are cost effective for sludge generated by treatment at source. At the same time more STP sludge would be free of toxic contamination and thus suitable for spreading on agricultural land -- a beneficial use that also conserves landfill capacity.

The problem of volatile chemicals transferring from water to air can also be eliminated. Volatiles will not be lost during transit if treated at source. Methods could be adapted to eliminate loss during treatment at the industrial plant site.

Finally, treatment at source would be conducted by industry personnel. These individuals should have the experience and training required to handle the toxic compounds created at the site.

2.3 Provincially-Set BATEA Limits

Toxic discharges released to the sewer system can have far reaching health and environmental impacts. Because these contaminants float downstream and spread beyond the boundaries of local communities, the ministry will set provincial regulations for each industrial sector imposing effluent standards based on BATEA.

The application of sector-by-sector limits based on BATEA follows from the principle that the best pollution control technology for one sector may not be technically effective or economically feasible for other sectors. By setting standards based on BATEA for each sector, rather than a single standard for all dischargers, the province will achieve a better overall level of protection reflecting the diversity of industrial wastewaters, processes and products in Ontario.

Provincial regulations set by the ministry will address the concerns of municipalities, industries and the public for a fair and effective control program in three main ways. First, with the province responsible for formulating the regulations, the program benefits from provincial technical experience. Also, the cost of duplication of effort among municipalities is avoided. Second, provincial regulations will provide a consistent and fair application of environmental law so that a systematic reduction of toxics is achieved within all municipalities in Ontario.

Third, provincial regulations will ensure a degree of equity across each sector of industry regarding requirements for pollution control. If control requirements were established solely by municipalities, then two firms producing the same product in different municipalities might be subject to widely different discharge limits and costs. This disparity in control requirements could lead to an unfair competitive advantage for one of the firms.

2.4 Local Limits

In some locations, application of provincial BATEA standards may not eliminate the health or environmental problems associated with certain indirect discharges. Site-specific problems may persist and require further measures. In these cases, the principle of economic fairness will be overridden by an urgent need to protect the environment and public health. Municipalities will be required to impose more stringent limits to address these local problems.

Local limits will also be imposed to control the discharge of conventional pollutants, thereby ensuring the proper operation of the sewage treatment plant.

These site-specific limits will be derived using standardized methods provided by the ministry. All limits developed by municipalities must be approved by the ministry before implementation.

2.5 Rationale for Municipal Enforcement

Municipal enforcement of the sewer use control program has several advantages. Because they are familiar with local industrial users, municipal officials usually know the location, wastewater flow and pollutant loadings of the industries discharging to the sewers. Many municipalities already possess the administrative mechanisms on which to base enforcement measures.

Municipal officials are also in the best position to correct problems within their own treatment systems. Therefore, local limits can be established and enforced to stop indirect discharges from interfering with the treatment process at the local plant or passing through to waterways. Finally, as sewage treatment plants will be regulated as a MISA direct discharger to waterways, it is in the interest of the municipal governments to ensure that the treatment plant is receiving only those wastes that it can effectively treat. In the event that the sewage treatment plant effluent is out of compliance with the MISA direct discharge effluent limits the ministry can prosecute the treatment plant operating authority, whether it be a municipality or the Ministry of the Environment.*

2.6 Public Consultation

Public participation is vital to the development of all MISA initiatives. The sewer use control program is no exception. With public involvement, the ministry benefits from a wide range of viewpoints in developing the best possible control program for Ontario. At the same time, the public is kept fully informed.

In addition to this discussion paper, all members of the public are invited to comment on both phases of the report prepared by the consultant, M.M. Dillon Ltd. Copies may be obtained by calling the ministry's public information centre at (416) 323-4321.

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* The Ministry of the Environment operates 238 sewage treatment plants on behalf of Ontario municipalities.

On-going consultation with municipalities and industries will be maintained through joint technical committees which are responsible for making recommendations on the provincial regulations. Initial public review of the regulations will be provided by the MISA Advisory Committee (MAC), a group of independent environmental experts. MAC will also provide the Minister of the Environment with advice on the sewer use control program and other MISA matters.

All provincial regulations necessary to implement the sewer use control program will first be issued in draft form providing a forty five day period for public review.

Throughout the development and implementation of the program, the public will have access to information on contaminant discharges to the sewer system, the discharge limits set for each discharger, those dischargers in compliance and the status of those that must take abatement action to comply with specified limits.

3.0 THE MISA SEWER USE CONTROL PROGRAM

3.1 Program Overview

The MISA sewer use control program proposed by the ministry is designed to protect Ontario's waterways by reducing toxic-contaminated wastewater discharges to the sewer system. Under the program, the ministry will provide the legislative powers and the necessary means to achieve the systematic reduction of a broad range of toxics and the virtual elimination of persistent toxic contaminants.

The proposed sewer use control program calls for the Ministry of the Environment to set province-wide discharge limits for toxic contaminants on a sector-by-sector basis. This approach is the same as that taken in regulating direct dischargers under MISA. The program also requires municipalities to apply more stringent local discharge limits, as necessary, to ensure effective operation of the sewage treatment plant and to protect the local environment and STP workers from the hazards posed by discharges to the sewer system.

Under the proposed program, municipalities will act as the first line of enforcement. The ministry will augment municipal enforcement by conducting province-wide monitoring and inspection as part of its audit of industrial compliance and municipal enforcement activities.

With this program, Ontario moves beyond a voluntary compliance system to a program that will be enforced with full power of provincial law. The regulations set by the ministry will ensure that a consistent and fair application of environmental law is achieved.

3.2 Discharge Limits

The problems posed by some 12,000 dischargers to Ontario's sewer systems vary in kind and degree. Some industries, with small volumes of discharge containing biodegradable pollutants may pose little threat. Others, with large or variable wastewater flows and pollutant loadings, or with discharges contaminated with toxics, present an unacceptable hazard to the environment and human health.

The ministry is proposing a program which places the most stringent discharge limits and control measures on industries presenting the greatest hazard.

BATEA Limits

Stringent requirements will apply to industries with discharges containing toxic contaminants. These industries will be placed in industrial categories and required to pre-treat their wastewater to meet specific sector discharge limits for a broad range of toxic contaminants. Discharge limits will be based on the best available pollution control technology which is economically achievable for each sector (BATEA).

The ministry proposes that BATEA regulations be placed initially on 22 major industrial categories, including the fabricated metal products and organic chemicals sectors, two of the most significant sources of toxic contaminants.

Periodic review of the BATEA limits will be conducted to determine when technological advances allow a further tightening of discharge limits. When they do, the ministry would impose more stringent discharge limits.

Periodic review will also allow the ministry to identify further candidate sectors for BATEA regulations. The plan is to expand the program by imposing discharge limits on all toxic dischargers and, through successive reviews, tighten the limits until virtual elimination of persistent toxics in discharges to municipal sewer systems is achieved.

In developing limits based on BATEA, the ministry will conduct economic studies for each sector. These studies will be completed prior to the promulgation of the BATEA regulations, and will serve in the process of setting discharge limits.

Local Limits

Under the proposed program, municipalities will be required to impose site-specific limits on conventional pollutants and on toxic contaminants as necessary to protect human health, the operation of the STP, and the local environment.

For dischargers under a provincial BATEA limit, the local limit and the provincial limit will be compared. In all cases, the more stringent of the two will apply.

Conventional pollutants are included under local limits because STP operation can be upset by a sudden surge of a large volume of wastewater and/or a high concentration of conventional pollutants. Such discharges can overload the STP, resulting in untreated or partially treated wastewater, possibly containing toxics, discharging to the environment.

The ministry has established criteria to identify industries which are capable of causing these upset conditions. Under the program, these industries will be designated as significant industrial dischargers (SIDs). Municipalities will be responsible for deriving local limits to control SIDs and enforcing these limits with a stringent program of sampling and inspection.

The ministry will provide municipalities with standardized methods to derive local limits. Before implementation, all local limits will require ministry approval.

3.3 Other Control Measures

Under the proposed program, the ministry would forbid the discharge of specific pollutants including those that are flammable, explosive, corrosive, liable to obstruct the sewer system or those that have temperatures in excess of 65 degrees Celsius. The specific prohibitions would also forbid the discharge of hazardous materials, waste pesticides and herbicides, and industrial wastes and chemicals listed in Schedule 1-3 of Ontario Regulation 309 (Environmental Protection Act).

The program would also address spills to the sewer system. The ministry would define what constitutes a spill to the sewage treatment plant and specify the notification requirements for the industrial discharger who causes the spill. The ministry would also define who is responsible for damage or loss incurred as a direct result of the spill and procedures for obtaining compensation. For companies with a significant spill potential, the ministry will require the implementation of an approved spill prevention program.

As a final control measure, the program would require industries with contaminated run-off to develop and implement a Best Management Practices (BMP) plan. Compliance with the plan will prevent unnecessary discharges and minimize unpreventable discharges of contaminated stormwater to storm sewers. Measures taken under the plan will address materials storage, housekeeping practices, preventative maintenance procedures, safety programs, and employee training.

3.4 Enforcement

Under the proposed program, municipalities will provide the first line of enforcement for all discharge limits and other control measures. To do this, municipalities must develop an enforcement plan and submit it to the ministry for approval.

These plans will incorporate all provincial and local regulatory discharge limits and require municipalities to conduct monitoring, auditing and other enforcement activities as specified by the regulations. In cases where municipalities lack the expertise or resources, the ministry will take over the enforcement role with direct charge-back. The ministry will provide criteria to determine when the province will act as the sole enforcement agent.

Before the ministry will approve a plan, the municipality must demonstrate it has the organization, staffing and resources to enforce all provincial and local discharge limits and all other control requirements. They must also have a financial program to recover the cost of enforcement.

Dischargers in the twenty-two industrial categories to be placed under BATEA limits and the significant industrial dischargers are designated as priority dischargers for enforcement under the sewer use control program.

The self-monitoring and reporting requirements for these priority industries will be specified by provincial regulations. The regulations will state the sampling and analytical protocols, flow measurement, recording and data submission procedures to be followed to ensure that industry self-monitoring results are accurate and representative.

Industries must report the results of self-monitoring to the municipality on a regular basis. Municipalities will verify that these industries are in compliance by reviewing the reports and by conducting random sampling and routine inspections. Provincial regulation will require municipalities to enforce compliance, ensure industries carry out prescribed abatement action to meet discharge limits, and prosecute offenders.

3.5 Ministry of the Environment Audit

The results of all municipal enforcement activities must be reported quarterly to the ministry; municipalities will also be required to provide an annual summary of enforcement activities. These reports will describe the results of municipal monitoring and auditing activities, and the status of abatement action taken by industries out of compliance. They will also report on the progress of any prosecutions undertaken by the municipality against a discharger out of compliance with monitoring requirements or discharge limits.

The ministry will review these municipal reports, and audit municipal enforcement activities. At its discretion, the ministry will also monitor industrial effluents and inspect plant sites to verify the integrity of municipal reports and the status of industrial compliance.

The ministry will also require municipalities to keep the public informed of enforcement action by publishing annually the names of violators and the status of abatement action in the local newspaper.

In any situation where an industry is out of compliance, the ministry can, under provincial regulation, prosecute the industry for non-compliance and the municipality for failure of enforcement.

3.6 Household Hazardous Wastes Management

In addition to the controls on industrial dischargers which will be imposed under the sewer use control program, the ministry also recognizes the need for the safe management and disposal of household hazardous wastes. These household hazardous wastes pose many of the same problems for the sewage treatment system and the environment as industrial discharges.

The ministry has established a grant program to encourage and aid municipalities in setting up special household hazardous wastes disposal days. In addition, the ministry has published a document, "Guide to Implementing Household Hazardous Waste Collections" which is a detailed, step-by-step guide for conducting such projects.

The success of any household hazardous waste management program depends on public education. The ministry has produced a second brochure, "Hazardous Wastes In Your Home" which identifies the different types of household hazardous wastes and presents safe handling and disposal procedures for the public. The ministry is investigating further opportunities for public education to encourage householders to dispose of hazardous wastes in an environmentally responsible manner. This may include product labelling to alert consumers of special disposal requirements.

The ministry is also encouraging municipalities to establish permanent household hazardous waste collection depots and develop programs for exchange or recycling of these materials.

4.0 PROGRAM DEVELOPMENT

4.1 Pre-Program Activities

Before program implementation, the ministry must finalize the control program and make necessary legislative changes. This discussion paper, outlining the ministry's preferred option, is being released for public review and comment. At the end of the 90-day review period, the ministry will assess the comments received and make appropriate changes to the sewer use control program.

To provide the legislative authority for program development and implementation, amendments will be made either to the Ontario Water Resources Act or the Environmental Protection Act or both. Under current legislation, the ministry can only specify discharge limits on a site-specific basis for indirect dischargers. The proposed amendments would empower the ministry to set sector-wide limits for indirect dischargers and to perform its audit of industrial compliance and municipal enforcement activities.

Legislative changes will also have to be made to the Municipal Act to provide municipalities with adequate authority to enforce provincial regulatory requirements. The changes would give municipalities the authority to refuse or terminate sewer use, enter discharger premises, perform on-site inspections and sample effluent, and require reporting by sector industries under BATEA regulations and significant industrial dischargers.

4.2 Participants and Process

The ministry plans to develop the provincial regulations through a consultative approach. A joint technical committee will be formed with representation from relevant ministries of the Ontario government, the federal government, the Municipal

Engineers Association, the Association of Municipalities of Ontario, and major industrial organizations, such as the Canadian Manufacturers Association.

The joint technical committee would be responsible for developing the required provincial regulations and forwarding these as recommendations to the Minister of the Environment. Specific draft components of the regulation such as the discharge limits for individual sectors would be developed by sub-committees with membership drawn from the above organizations and pertinent sector associations.

Initial public review of the regulations will be provided by the MISA Advisory Committee (MAC), a group of independent environmental experts. MAC will also provide the Minister of the Environment with advice on the sewer use control program and other MISA matters.

Pre-regulation consultation, conducted through the joint technical committee and its sub-committees, will gather information necessary to develop practical and effective regulations. Pre-regulatory sampling and analysis will yield information on the choice of sampling and flow measurement locations, parameters for compliance monitoring, and compliance monitoring frequencies. This pre-regulation sampling results and other information will also be used to determine effluent discharge limits.

4.3 Developing BATEA Limits

Limits based on the best available pollution control technology economically achievable will be placed on all dischargers within the designated sectors. These limits will be applied on a sector-by-sector basis. The twenty-two sectors selected to be placed first under BATEA limits are those which discharge the largest loadings of toxics to the sewer system.

BATEA-based discharge limits will be set for those pollutants having the greatest ability to harm human health or damage the environment. Limits will be stated in terms of allowable concentrations and either mass loadings or loadings per unit of production. As pollution abatement technology improves, limits will be revised reflecting the more stringent levels that can be economically achieved.

In addition to stating numerical limits, BATEA regulations will detail other industry control requirements. A section of the regulation will state an industry's responsibility for maintaining operating records, reporting information and notifying municipalities of violations. The steps to be taken following a violation will be defined, and the discharge limit review period will be specified.

4.4 Developing Local Limits

Local limits will be developed by the municipalities in accordance with provincially-regulated standardized methods and procedures.

To develop local limits, municipalities must first identify the pollutants present in raw sewage which have a reasonable potential for passing through to receiving waterways, harming the health of sewage treatment plant workers, upsetting plant operation, or contaminating sludge.

The municipality must then determine, using technically-defensible methods, the maximum allowable loadings the sewage treatment plant can receive. Finally, the municipality will allocate the maximum allowable loads to dischargers under a BATEA limit and significant industrial dischargers. These limits must be approved by the ministry.

Where a local limit and a BATEA limit conflict, the more stringent of the two will be enforced.

The controls dischargers must adopt to meet local limits will vary. To reduce toxic discharge, controls more stringent than BATEA may be required. Controls to reduce the impact of conventional pollutants will likely involve measures such as restricting the discharge rate through flow equalization, screening or partial filtration to remove solids and biological or chemical pre-treatment. These measures will ensure the effective operation of the STP.

The ministry will provide a guidance manual to assist municipalities in developing local limits.

4.5 Developing Other Control Requirements

Prohibitions forbidding the discharge of specific pollutants apply to all indirect dischargers and will be stated in provincial regulation. Requirements concerning spills are equally broad in application and will also be stated in provincial regulation.

Dischargers under a BATEA regulation and significant industrial dischargers may be required to submit and implement comprehensive spill prevention plans. A plan will be required if an industry has a reasonable potential for chemical spills which could have adverse environmental impacts.

A Best Management Practices plan will also be required if a BATEA industry or a SID has contaminated run-off. The plan will address such items as materials storage, housekeeping practices, preventative maintenance procedures, safety programs and employee training.

4.6 Cataloguing Indirect Dischargers

All municipalities must conduct a comprehensive industrial inventory. This inventory will identify all industries discharging to the sewer system and will characterize the volume and content of industrial discharges.

As the first step in the inventory, all dischargers must file a report indicating the nature of the business, the hours of operation, the nature and volumes of wastewater discharged and the discharge locations. The municipality will complete the inventory with industrial site visits, sampling, questionnaires and interviews.

The municipality will also develop a mechanism whereby new industrial dischargers to the sewer system can be identified and any changes in industrial processes, discharges, ownership or address can be tracked. The inventory must be updated on an annual basis to ensure that all dischargers are placed under applicable limits.

From this information, municipalities will identify industries as significant industrial dischargers or those subject to a provincial BATEA limit and submit their lists to the ministry for approval.

Once inventories receive ministry approval, significant industrial dischargers and BATEA sector dischargers will be given legal notice of their status, sewer use requirements and other compliance responsibilities.

These dischargers will be subject to provincially-regulated self-monitoring, municipal enforcement, and ministry audit. Dischargers are also subject to prosecution by municipalities or the province, or both in the event of non-compliance.

Industries with any of the following discharge characteristics will be designated as a significant industrial discharger:

- discharges 114 cubic meters (25,000 imperial gallons) per day or more of process wastewater;
- discharges a process wastewater which is more than five per cent of the average dry weather flow to the sewage treatment plant;

- has a surcharge agreement with the municipality or the sewage treatment plant operating authority;
- discharges process wastewater which has more than five per cent of the average biochemical oxygen demand loading to the sewage treatment plant;
- discharges contaminants that may pass through to waterways, adversely affect the sewage treatment plant and sewer system, contaminate sludge, or endanger sewage treatment plant workers; or
- has a potential to spill any chemical that may pass through to waterways, adversely affect the sewage treatment plant and sewer system, contaminate sludge, or endanger sewage treatment plant workers.

The last two criteria will ensure that any toxic dischargers of concern not yet under a BATEA limit will be designated and controlled as a significant industrial discharger. As further industrial categories are created for BATEA limits, these dischargers will be placed under their respective sector BATEA limit.

The following sectors are those to be placed initially under sector-wide BATEA discharge limits:

- fabricated metal products (metal finishing, electroplating, coil coating)
- organic chemicals (organic chemicals manufacturing, pesticide chemicals, plastics and synthetics, pharmaceuticals manufacturing, plastics molding and forming, and fibreglass moulding and manufacturing)
- waste treatment and recycling industries
- primary metal industries (iron and steel, metal moulding and casting)
- non-ferrous metals (non-ferrous metals manufacturing, ferroalloy manufacturing, non-ferrous metals forming, and aluminum and copper forming)

- inorganic chemicals (inorganic chemicals manufacturing, soap and detergent manufacturing, paint formulating, ink formulating, gum and wood chemicals, and fertilizer manufacturing)
- electrical and electronic equipment manufacturing
- pulp and paper (pulp, paper and paperboard and builders' paper and board mills)
- petroleum refining
- textile mills
- leather tanning and products
- timber products, including wood preserving
- industrial laundries, including dry cleaning
- rubber and rubber products manufacturing
- hospitals, clinics and funeral services
- food (meat products, dairy products processing, fruit and vegetables processing, grain mills and sugar processing)
- integrated automobile manfacturing facilities
- equipment manufacturing and assembly
- stone, clay and cement industry
- service industries, including agricultural services, photographic processing, warehousing and disinfection and extermination services
- printing and publications industry
- transportation industry

4.7 Affected Municipalities

Municipalities with at least one discharger under a BATEA regulation or a SID discharging to their sewer system must implement a comprehensive enforcement plan.

At the present time, the ministry is proposing a staged process to designate which municipalities initially must implement a plan. This approach will ensure orderly program growth and the efficient use of resources. Priority will be given to those with a population greater than 10,000 or with sewage treatment plant flows greater than 4,546 cubic meters (1 million Imperial gallons) per day.

Any other municipality may be required to submit a comprehensive enforcement plan if, in the ministry's judgement, industrial discharges to the plant pose a threat to worker health, or could upset treatment operations, or if STP effluent has the potential to harm the local receiving environment.

Priority municipalities which must develop the comprehensive plan include Metropolitan Toronto, all Regional Municipalities, all District Municipalities, the County of Oxford and the cities, towns, villages and townships listed below by region:

Ontario Central

*Cobourg *Wasaga Beach
*Bradford *Colborne
*Lindsay *Campbellford
*Port Hope *Collingwood
*Penetanguishene *Barrie
*Innisfil TWP *Orillia
*Peterborough *Midland

Ontario Southwest

*Kincardine *Hanover *Listowel
*Port Elgin *Dresden* St. Thomas
*Walkerton *Wallaceburg *Windsor
*Aylmer *Moore TWP *Chatham
*Amherstburg *Strathroy *Sarnia
*Maidstone TWP *London *Goderich
*Leamington *Owen Sound
*Stratford

Ontario Northwest

*Dryden *Fort Frances
*Thunder Bay *Kenora

Ontario West Central

*Paris *Fergus *Orangeville
*Brantford *Guelph

Ontario Southeast

*Almonte *Perth *Renfrew
*Prescott *Hawkesbury
*Arnprior *Petawawa
*Iroquois *Carleton Place
*Smith Falls *Napanee
*Picton *Alexandria
*Kingston Township
*Brockville *Kingston
*Belleville *Trenton
*Pembroke *Cornwall

Ontario Northeast

*Elliot Lake *North Bay
*Kapuskasing *Chapleau
*Sault Ste. Marie *Parry Sound
*Hearst *Timmins *Kirkland Lake
*Sturgeon Falls *New Liskeard

The ministry will provide a guidance manual to assist these municipalities in the development of their enforcement plan.

4.8 Sequence and Timing

The sewer use control program calls for the identification and measurement of toxic contaminants in discharges, the imposition of controls at source and the strengthening of enforcement measures. To achieve each of these objectives, the ministry is proposing to develop and implement a series of regulations in a step-by-step process that will allow the orderly use of existing resources in the province.

The time table for completion of the various major phases is presented below:

PROGRAM ACTIVITY	COMPLETION DATE
° Ministry of the Environment final position on the sewer use control program	DECEMBER 1988
° Revision of Ontario Water Resources Act or Environmental Protection Act and Municipal Act to provide adequate legislative basis for the sewer use control program	JULY 1989
° Sewer Use Program Regulation (which provides the framework for all program activities including cataloguing indirect dischargers, developing control requirements (except BATEA limits), monitoring and enforcement protocols, etc. (Appendix A))	DECEMBER 1989

° 22 BATEA Sector Regulations (developed on a staged basis; BATEA regulations will first be applied to the Fabricated Metal Products, Organic Chemicals, Waste Treatment & Recycling Industries, and Primary Metal Industries Sectors)	1991 - 1993

5.0 PROGRAM COSTS AND FINANCING

5.1 Background

The cost of implementing the sewer use control program will be incurred mainly by provincial government, municipalities and the industry.

The costs incurred by the provincial government, due mainly to the development of the program and regulations and its audit and enforcement functions, will be absorbed through internal re-allocation of operating budgets.

Costs to municipalities will be incurred mainly by program enforcement. The Association of Municipalities of Ontario and some municipalities requested that the ministry consider funding municipalities to implement the program. The ministry has considered this recommendation and proposes that costs incurred in implementing the program should be shared by municipalities, the provincial and federal governments and industry.

Industries will be responsible for all costs associated with self-monitoring and carrying out abatement activities. Financial assistance may be available to industries in cases where compliance with program requirements can be proven to cause economic hardship.

The following sections describe the municipal enforcement program costs in detail and the industry program costs in brief.

5.2 Municipal Costs and Financing

The ministry has estimated program costs based on the projection that approximately 90 municipalities will initially be required to implement comprehensive municipal enforcement programs. The costs to these municipalities will be incurred in three main ways: the development cost of preparing an enforcement plan; the capital cost of equipment and laboratory facilities; and the operational cost of ongoing program sampling, inspection and enforcement.

Enforcement Program Development Costs and Financing

Municipalities in the United States, in developing similar program plans, incurred an average individual cost of $150,000 (with a range from $50,000 to $200,000). Similar development costs in Ontario would require a total expenditure of approximately $13.5 million for the projected 90 municipal enforcement programs.

The ministry will fund 50% of these costs and will negotiate with the federal government to provide further assistance. The remaining amount will be covered by municipalities. This cost-sharing approach is similar to the one taken in the United States. In developing their pre-treatment program, the federal United States Environmental Protection Agency funded 75% and some state governments funded 12.5% of the development costs.

Enforcement Program Capital Costs and Financing

Costs will be incurred for the purchase of sampling equipment and laboratory facilities. Capital facilities are expected to cost approximately $15 million. The ministry will provide one-time funding for no less than 33% of these costs. This funding arrangement is consistent with existing Ministry of the Environment funding programs such as LifeLines. In the longer term, however, municipalities will be asked to set up reserve funds out of operating revenues to allow for replacement of old equipment and for the purchase of more modern monitoring equipment.

Enforcement Program Operating Costs and Financing

The estimated costs for program sampling, inspection and enforcement that will be borne by Ontario municipalities are based on projections from the actual costs incurred by municipalities in the Great Lakes states. The number of industries per industrial sector in these states is similar to the number in Ontario on a per capita basis.

Using these estimates, the ministry expects that the total sewer use control program operating cost borne by Ontario municipalities will be approximately $20.6 million per year. Currently, municipalities spend approximately $3.8 million on municipal sewer use control measures. The additional cost, then, for the proposed program would be $16.8 million per year.

ESTIMATED ANNUAL MUNICIPAL OPERATING COSTS

Cost Feature	Current Cost	Cost Under Proposed Program[1], [2], [3]
Total sewer use program cost per year	$3,800,000	$20,600,000
Municipal personnel required	95	270
Cost per capita	$0.54	$2.73

Note:

[1] Total annual sewage servicing operating budget in 1985 (excluding capital) in Ontario was $269,000,000.

[2] Total annual sewage servicing charges collected in 1985 in Ontario was $231,000,000.

[3] Total annual municipal budget in 1985 (excluding capital) in Ontario was $6,513,000,000.

The ministry is proposing that operating costs for the sewer use control program should be funded locally under a user-pay scheme. This approach is currently used by some Ontario municipalities to finance existing municipal by-law enforcement programs, and is described in more detail in Appendix C.

5.3 Industry Capital and Operating Costs

The costs of the program on BATEA sector industries will be determined by economic studies conducted prior to implementing BATEA limits regulations. These economic studies will be one of the factors considered by both the joint technical committee and the MISA Advisory Committee as the regulations are formulated, and by the ministry before it promulgates the regulations. Until then, it is premature to discuss the costs to industry of implementing the sewer use control program.

The government of Ontario is developing a program called Loans for Environmental Defence (LEND). This program is intended to provide financial assistance to industries to offset the cost of compliance with pollution control requirements in exceptional circumstances. Criteria are being developed for the administration of the multi-million dollar program which would provide loans to cover a portion of the cost of cleanup to companies that demonstrate financial need. Any company accepting such a loan would be required to guarantee both the preservation of jobs and environmental results. The size of the LEND fund will be based on estimates of the dollar amount required to help the number of companies expected to need such assistance. Companies are expected to apply their share for pollution cleanup.

In addition, some of the equipment that will have to be installed to comply with MISA regulations will be eligible for the Accelerated Capital Cost Allowance (e.g., depreciation over 3 years instead of over 5 to 10 years) under Federal and Provincial tax legislation.

APPENDICES

APPENDIX A - SEWER USE PROGRAM REGULATION

The key components of the sewer use control program, as outlined in Section 3 can roughly be classified into two groups. The first group includes all activities (except BATEA limits) required of the industries, municipalities and the ministry in the development, implementation and enforcement of the sewer use control program. These components will be placed under the Sewer Use Program Regulation. The second group of the key components includes all sectoral BATEA limits. The concept and process for deriving the limits in the BATEA regulations have been elaborated in the MISA White Paper (1986).

The Sewer Use Program Regulation specifies the roles and the responsibilities of industries, municipalities and the ministry, as well as the scheduling of various activities under the program. It will also specify all monitoring, reporting, compliance assessment, abatement and enforcement protocols. The regulation requires municipalities to administer and enforce the program within prescribed procedures.

Specifically, the regulation contains the following five chapters:

A.1 General

In this chapter the objectives, purpose and applicability of the sewer use control program will be outlined. All the pertinent definitions (e.g., indirect dischargers, pre-treatment, significant industrial dischargers, etc.) will be presented. The opportunities for public participation in the development and implementation of the program will be clarified. As well, the public access to information (and the confidentiality of certain process information, trade secrets, etc. as protected under the Freedom of Information Act) will be specified.

A.2 Cataloguing Indirect Dischargers

This chapter requires municipalities to identify industries to be placed under a BATEA discharge limit and significant industrial dischargers. Key sections of the chapter are highlighted below.

BATEA Sector Industries and Significant Industrial Dischargers Section: The sewer use control program will impose stringent controls on priority industrial sectors and significant industrial dischargers. This section will specify the industry sectors and define a significant industrial discharger.

Initially, the 22 priority industrial sectors will come under sector pre-treatment regulations which impose BATEA-based discharge limits. The sectors have been identified in Section 4.

As well, the criteria for designating any industrial establishments to the significant industrial discharger category have been listed in Section 4.

Inventory Section: Under this section, every industrial establishment in Ontario discharging wastewater to a municipal sewer system is required to file a yearly report. The report will specify the nature of the business, the hours of operation, the nature and volumes of wastewater discharged and the discharge locations. This information, together with other data gathered by questionnaires, telephone interviews, plant visits, industrial self-monitoring, etc. will assist the ministry and municipality in determining which industries and which contaminants in discharges must be placed under control.

A computerized system, the Indirect Discharger Management Information System (IDMIS), will provide the data processing capability and information necessary to carry out the inventory and audit discharger compliance with the MISA regulation requirements. The IDMIS is currently being developed as a pilot project to deal with dischargers in the Toronto area through the cooperation of Metropolitan Toronto. The system will be available to other municipalities when completed.

A.3 Control Requirements

This chapter describes the two types of effluent limits for indirect dischargers, BATEA-based and local, as well as other control requirements (prohibitions, spill prevention, etc.) The application of these requirements to specific groups of dischargers will also be defined. Key sections are highlighted below:

BATEA Limits Section: This section will stipulate that the industries that fall under the BATEA sectors will have their discharges meeting the effluent limits as specified in the BATEA regulations. Initially, BATEA limits will be developed for 22 industrial sectors. BATEA limits will be developed for additional sectors on a priority basis at a later date.

Local Limits Section: This section will require municipalities to develop specific local limits for indirect dischargers in order to protect the local receiving environment. Criteria for the protection of the local receiving environment will be elaborated under next Section.

These local limits will apply to all indirect dischargers within the municipality.

To develop the local limits, the municipality must first identify the pollutants present in the raw sewage which have a reasonable potential for harming worker health, interfering with the treatment process, passing through to waterways, or contaminating sludge. Then the municipality must determine, using standardized methods, the maximum allowable loading of these pollutants to the sewage treatment plant. Finally, the municipality must allocate the maximum allowable loads to the industrial dischargers. Although the municipality will develop the specific local limits, they must do so by using a provincially standardized procedure and the limits so derived, must be approved by the ministry.

Prohibitions Section: The prohibited discharges in this section will apply to all users of the municipal sewer systems. The prohibitions will be similar to those in the 1988 Model Sewer Use By-Law, except that they will be applied uniformly throughout the province and have the force of a provincial regulation.

Prohibited discharges include general and specific prohibitions. The general prohibitions forbid discharges which cause problems to the sewage works or hazards to the sewage treatment plant employee, which interfere with the operation of the sewage treatment plant, which prevent the use of sludge on agricultural land, or which pass through the sewage works untreated causing contravention of the Environmental Protection Act or the Ontario Water Resources Act.

The specific prohibitions forbid the discharge of pollutants which are flammable, explosive or corrosive, which are capable of obstructing the sewage flow, or which have temperatures greater than 65 degrees Celsius. The specific prohibitions also forbid the discharge of hazardous materials, waste pesticides/ herbicides, and industrial wastes and chemicals listed in Schedule 1-3 of Ontario Regulation 309 (Environmental Protection Act).

Spills Section: This section will define what constitutes a spill to the sewer system and specify the notification requirements for the industrial discharger who causes the spill. The section will also describe who is liable for the damage or loss incurred as a direct result of the spill and the procedures for obtaining compensation.

Best Management Practices Section: This section will require significant industrial dischargers and BATEA sector industries to prepare, submit and have approved:

1. a Best Management Practices (BMP) plan if they have contaminated surface runoff;

2. an Industrial Discharger Management Practices (IDMP) plan if it is determined that they have a reasonable potential for chemical spills or slug discharges to the sewage system which could have adverse environmental impacts.

A Best Management Practices plan will be required if the industry has contaminated surface runoff. The purpose of the BMP plan, when implemented, is to prevent any unnecessary discharges and to minimize any unpreventable discharges of contaminated stormwater to storm sewers. The BMP plan will address items such as materials storage, housekeeping practices, preventative maintenance procedures, safety programs, and employee training.

An Industrial Discharger Management Practices plan is required if an industry has a reasonable potential for chemical spills or batch discharges which could have adverse environmental impacts. The purpose of implementing the IDMP plan is to minimize chemical spills or batch discharges which result in the discharge of toxic pollutants to the sanitary sewer system. The IDMP plan will address items such as spill prevention methods, materials storage, preventative maintenance procedures, housekeeping practices, safety programs, and employee training.

A.4 Enforcement

This chapter states how the sewer use control program will be enforced by municipalities with backup enforcement and auditing by the ministry. The industry self-monitoring program will be described, and the municipalities involved in the program will be identified. The requirements of municipalities, as well as the user-pay financing scheme, will be clarified. Key sections are highlighted below:

Municipal Enforcement Program Section: Municipalities that have a BATEA sector discharger or a significant industrial discharger will be required to develop and implement a stringent sewer use control enforcement program. The municipal enforcement program will incorporate provincial regulations and involve municipalites in monitoring, auditing, assessing abatement progress and prosecuting activities (details on the municipal sewer use enforcement program are provided in Appendix B). Under the regulation, municipalities will be required to finance their enforcement program under a provincially standardized user-pay scheme (details on alternative user-pay schemes are provided in Appendix C).

Industry Self-Monitoring Section: The monitoring section will require all significant industrial dischargers and dischargers in BATEA sectors to monitor their wastewater for toxic and conventional contaminants. These industries will come under regulation on a phased schedule.

Data collection, submission and recording procedures will also be specified under the section. The self-monitoring results and other information provided by industries will be audited by the municipality and the ministry through inspection and random sampling. Industries not meeting the regulation requirements will face municipal prosecution. In addition, strict penalties, provided under the provincial Environmental Protection Act/ Ontario Water Resources Act, will be applied to companies that do not comply with the regulation requirements (and to municipalities for failing to enforce the regulations).

The section will include the following requirements to ensure that accurate monitoring results are gained:

- dischargers will be required to follow established sampling procedures, flow measurement procedures and laboratory analytical procedures;

- laboratories conducting the analysis of samples must follow quality assurance and quality control programs specified in the regulation; these analyses will be audited by the municipality's or ministry's laboratory

- additional audit samples will be collected by the municipality and/or the ministry to verify that samples collected by the discharger are representative.

Surcharge for Conventional Pollutants Section: The sewer use surcharge section will specify which conventional pollutants, when found in industrial discharges in excess of specified levels, can be discharged without pre-treatment (or with only partial pre-treatment) to the sewage treatment plant on a fee for service basis. Surcharge agreements are allowed only when the STP has spare treatment capacity. Surcharge agreements will state all the conditions for accepting the wastes. Only the following conventional pollutants will be allowed for surcharge agreements: suspended solids, biochemical oxygen demand, solvent extractable matter of animal and vegetable origin, nitrogen, and phosphorous.

Effluent Discharge Permit Section: This section will require individual significant industrial dischargers and each discharger under the BATEA sectors to obtain an effluent discharge permit. The issuance of discharge permits generally provides the most effective control mechanism available for regulating industrial dischargers. Discharge permits serve two essential functions. First, the permit is a vehicle for establishing clear and explicit requirements relevant to each industrial discharger. Second, the municipalities ability to enforce the standards becomes significantly enhanced through the use of this approach. The permit will clearly specify:

- effluent discharge requirements and limitations (for that particular discharger);
- dates (date of permit, date for compliance, expiration date);
- self-monitoring requirements;
- reporting requirements;
- special conditions where necessary;
- general conditions;
- violation determination.

A.5 Scheduling

This section identifies the timing for the promulgation of the various sections of Sewer Use Program Regulation as well as the series of BATEA Limits Regulations.

APPENDIX B - MUNICIPAL ENFORCEMENT PROGRAM

Municipalities that have a BATEA sector discharger or a significant industrial discharger will be required to implement a strict enforcement program. The process for formulating such a program will be standardized under the provincial regulation. The municipal enforcement program will incorporate provincial regulations and involve municipalities in monitoring, auditing, assessing abatement progress and prosecuting activities. The program will have four key components which are described in more detail in the following:

B.1 Municipalities Involved

All municipalities having a BATEA sector discharger or a significant industrial discharger must implement the comprehensive and stringent sewer use enforcement program. At the present time, the ministry is proposing a staged process to designate which municipalities must implement the program. This approach will ensure orderly program growth, and the efficient use of limited resources available.

As a first cut, priority will be given to those municipalities with a population greater than 10,000 or with sewage treatment plant flows greater than 4,546 cubic metres (1 million Imperial gallons) per day. The municipalities in this category include Metropolitan Toronto, all Regional Municipalities, all District Municipalities, the County of Oxford, and the cities, towns, villages and townships identified in Section 4.

The second stage would involve designating all remaining Ontario municipalities with a population less than 10,000 or with sewage treatment plant flows less than 4,546 cubic metres (1 million Imperial gallons) per day that experienced site-specific problems or received discharges from significant industrial dischargers or BATEA sector dischargers. Some of these municipalities could be re-designated to the priority group if justified.

B.2 Development of an Enforcement Program Plan

Municipalities that are required to implement and enforce the comprehensive enforcement program will describe that program in a formal plan. The plan will be submitted to the ministry for approval.

In the plan, municipalities will provide proof that they have the required authority to implement and enforce their sewer use control program. They will also include in the plan: the enforcement mechanism they will use which incorporates the provincial regulations; the permit system they will follow which stipulates conditions for allowing industries access to the sewer system; the enforcement actions they will undertake; the staffing and resources they will employ in implementing the plan; and the public participation activities and the public access to information they will provide under the program. Key components in the plan are:

Industrial Inventory: Each municipality will conduct a comprehensive industrial inventory to identify all industries which are discharging to its sewer system and to characterize the volume and content of the industrial discharges. The municipality will use various methods to conduct the inventory including telephone inquiries, industry submissions (as required by the Sewer Use Program Regulation), industrial site visits, sampling, and workshops for the industrial dischargers.

The information which is gathered in this inventory will be the basis for determining whether an industrial discharger is classified as a significant industrial discharger or a BATEA sector industry and thus is subject to monitoring requirements and discharge limits as specified by the regulations.

The municipality will also develop a mechanism whereby new industrial dischargers to the sewer system can be identified; and changes in the industries processes, wastewater discharges, ownerships or addresses can be tracked.

The Municipal Sewer Use By-Law: Normally, provincial regulations are enforced by provincial ministries. However, in this case, it has been proposed that the provincially set sewer use control program be enforced by municipalities. In order to enforce the various sewer control requirements as specified under the provincial regulations, municipalities need an effective mechanism to transfer these requirements from the provincial jurisdiction to the municipal jurisdiction. The most effective way of doing this is by embodying the provincial regulation requirements into a municipal sewer use by-law. Therefore, to control the dischargers identified through the industrial inventory, the municipality will pass and implement a Ministry of the Environment approved sewer use by-law. This by-law will require the municipality to:

- institute a permit system to control the discharge of industrial wastewaters from significant industrial dischargers and BATEA sector dischargers;
- deny or condition new discharges or the change in the type of pollutants discharged to the sewerage system;
- require significant industrial dischargers and BATEA sector industries to comply with the applicable sectoral discharge limits and local discharge limits as well as other requirements;
- require BATEA sector industries and significant industrial dischargers to self monitor and submit reports to the municipality;
- carry out on-site inspection and sampling of industrial discharges;
- require the development and implementation of compliance and abatement programs by problem industrial dischargers;
- prosecute industrial users for violations of the by-law; and
- comply with information confidentiality requirements.

To aid municipalities in the development of this by-law, the ministry will provide a protocol containing all of the required limits and procedures specified under provincial regulations.

Municipalities, under provincial law, must follow the protocol in drafting their own by-law.

Municipal Sewer Use By-Law Limits: The sewer use by-law will contain three types of limits with which industrial dischargers must comply: industrial sector limits, local limits and prohibited discharges. If limits for the same parameter conflict, the more stringent one will apply.

Industrial sector limits will be based on the best available technology economically achievable (BATEA) and will be applied to specific industrial sectors as designated by the ministry.

Prohibited discharges include general and specific prohibitions which apply to all dischargers using the sewer system. The general prohibitions forbid discharges which cause a hazard to the sewage works or the sewage treatment plant employee, which interfere with the operation of the sewage treatment plant, which prevent the use of sludge on agricultural land, or which pass through the sewage works untreated causing contravention of the Environmental Protection Act or the Ontario Water Resources Act. The specific prohibitions forbid the discharge of pollutants which are flammable, explosive or corrosive, which are capable of obstructing the sewage flow, or which have temperatures of 65 degrees Celsius or greater. The specific prohibitions also forbid the discharge of hazardous materials, waste pesticides/ herbicides and industrial wastes and chemicals listed in Schedule 1-3 of Ontario Regulation 309 (Environmental Protection Act).

Local limits are site-specific discharge limits developed by the municipality to ensure that sewage treatment plant operations, worker health and the local environment are protected. Unlike the BATEA sector limits and prohibited discharges, these limits are not drawn from provincial regulations but are developed by the municipalities using methodologies supplied by the ministry. The development of the local limits involves three major steps: first, the identification of the pollutants present in the municipality's sewage treatment plant which could have an adverse impact; second, establishment of the maximum allowable loads for these pollutants to the treatment plant; and third, allocation of the maximum allowable load to the industrial dischargers. Since the local limits are derived on the basis of the type of treatment provided by the sewage treatment plant and other site-specific constraints, it is appropriate that these limits be developed by the municipality. Ministry approval, however, will be required for all local limits.

Once the municipality has developed and submitted an enforcement plan, the ministry will release it for public review and comment for a 45-day period. After the review period, the ministry will either approve the plan or deny approval based on its evaluation and the comments received in public submissions. If approval is denied, the ministry will provide the municipality with information and guidelines for correcting the deficiencies in the submitted plan.

B.3 Implementation of the Municipal Enforcement Program

Municipalities will conduct on-site inspection, sampling, flow measurement and analytical programs to monitor industrial discharges. The sampling program will include both routine sampling and unscheduled sampling to check compliance. The frequency of self-monitoring for significant industrial dischargers and BATEA sectoral dischargers will be specified in the appropriate provincial regulations. The sampling and analysis of the wastewater discharges will follow the procedures contained in the MISA Sewer Use Program Regulation.

The municipality must also develop procedures for reviewing and storing self-monitoring reports submitted by the significant industrial dischargers and BATEA sector dischargers. These reports and other reports and notices provided by the dischargers will be used to ensure they are in compliance with the program.

To enforce the by-law effectively, the municipality must develop an enforcement strategy.

The ministry will provide a manual describing an enforcement strategy which will ensure consistent and equitable enforcement throughout the province.

The municipality will require adequate staffing and resources to have a successful program. Personnel with appropriate training will be needed in the following areas:

- sampling, flow measurement and inspection
- laboratory analysis
- technical assistance
- legal assistance
- program administration.

Equipment which will be needed for the program will include:

- sampling and flow measuring equipment
- vehicles for sampling equipment and personnel
- laboratory analysis instrumentation (if done in-house)
- laboratory supplies (if done in-house)
- computer hardware, software, and supplies
- office furniture for personnel
- building space for office, equipment storage and laboratory.

B.4 Public Participation and Public Assess to Information

The municipalities must ensure that the public has the opportunity to participate in the development and implementation of each municipal sewer use control enforcement program. During the development process, the municipality will hold meetings to obtain input from the public, to establish working relationships with the industrial dischargers and to involve environmental interest groups.

During the implementation of the program, the municipalities will compile and maintain a list of persons, industries and organizations who will be notified of proposed changes to the program.

The public will have access to the following information: industrial discharger permits; which dischargers are not in compliance and the enforcement actions taken; which dischargers have abatement programs and the status of the programs; and which dischargers have agreements and the discharge limits and fees in the agreements.

The municipalities will also keep the public informed of incidents of significant violation by publishing at least annually in the area newspaper the names of all industrial dischargers with significant violations in the preceding twelve months.

APPENDIX C - MUNICIPAL FINANCING OF THE ENFORCEMENT PROGRAM

The ministry is proposing that operating costs for the sewer use control program be funded locally under a user-pay scheme. This approach is currently used by some municipalities in Ontario (and by all municipalities under the U.S. pre-treatment program) to finance existing municipal sewer use control enforcement programs.

C.1 Financing Alternatives

There are a number of alternative user-pay schemes which municipalities could consider. These are described below.

Ad Valorem Tax Increases for All Users: This approach establishes rates for sewer use based on the per dollar value of assessed property value. Using this rate, each unit -- residential, commercial, industrial or other -- is charged according to its value.

This method would distribute program costs over the entire population of the municipality, minimizing the impact of the increase to any specific class of users.

Certain disadvantages, however, are associated with this system of generating revenues. Collecting funds proportional to the value of an establishment would not be equitable across the industrial sectors since valuable properties do not necessarily discharge large quantities or high strength wastes, nor do modest properties necessarily discharge small quantities or low strength wastes. This system would also place a portion of the costs on domestic dischargers (including homeowners) to support the implementation of a program designed to address industrial discharges.

Surcharge to All Users: This option also distributes program operating costs to all users of the municipal sewer system. The primary difference between the surcharge to all users and the ad valorem basis for levying charges is that the surcharge would consist of a flat rate (i.e., fixed rate) per user while the ad valorem system imposes varying charges proportional to property assessment value.

Once again, the surcharge to all users would spread the impact of the increase in sewer use charges across the entire municipality, thus minimizing the impact on any particular type of discharger. An additional advantage that this surcharge system has is that no particular user would bear an exceptionally large or small portion of program costs because each user would be subject to a fixed increase in sewer use charge over the present charge.

Some of the same disadvantages exist with this surcharge alternative as with the ad valorem alternative. A substantial portion of costs are borne by residential users. Also, a fixed fee surcharge may be an onerous financial burden for some users while for others it represents only a minor increase.

Surcharge to Significant Industrial Dischargers and BATEA Sector Industries: Distribution of operating costs equally among significant industrial dischargers and BATEA sector industries is the foundation of this alternative. This will lead to a much higher charge per provincially regulated discharger than either of the previously discussed alternatives, and will eliminate sewer use control costs to other users.

The primary advantage of this alternative is that costs of program operation would be allocated to those users for which the program was developed -- the provincially regulated dischargers.

However, there are several disadvantages to this approach. Program operating costs may differ substantially for each regulated user, especially for laboratory and monitoring activities. This cost differential is not accounted for under this surcharge alternative. Similarly, the surcharge does not reflect the strength, constituents, or volume of regulated users' discharges. This may place a disproportionately larger share of the costs on the smaller users.

Proportional Charge to all Users: Program operating costs, under this alternative, would be disseminated to all users of the sewer systems proportionate to their actual use of the system. This is used in most municipalities as a means of assessing users for normal sewage servicing. A convenient and common manner of deriving these charges is through the application of a rate factor to each user's water consumption volume.

One of the obvious advantages of a user charge over either the ad valorem or surcharge to all users system is that it attempts to more closely correlate a user's charge to its actual sewer use, whether it be by volume, strength, or the non-domestic pollutants it contains. This approach is more equitable than those previously discussed, due to the relationship of payment to actual use. This option also has the advantage of distributing program costs to all users, and minimizing the impact of sewer use charge increases to any one class of user.

As with both the ad valorem and surcharge to all users schemes, this alternative has the disadvantage of requiring users other than SIDs and BATEA sector dischargers to contribute funds for a program that is not primarily targeted toward their discharges. Also, although this approach aims to justly distribute costs in proportion to sewer use, usually on a volume basis, it appears that it may not be as equitable, in that a given volume of industrial wastewater may not be compatible to the same volume of domestic waste in terms of its capability of being effectively treated.

User Charge to SIDs and BATEA Sector Industry Users: Under this financing alternative, program operating costs would be borne strictly by the significant industrial dischargers and BATEA sector dischargers and would reflect the volumes and types of discharge.

Advantages of this option basically include most of the benefits of the previously discussed alternatives. First, the program costs will be supported by those dischargers most directly responsible for the expenses incurred by implementation of the program. Second, each significant industrial discharger and BATEA sector discharger would bear a portion of the program expenditures proportionate to its sewer use and the program cost. Third, dissemination of costs to regulated users based on discharge will not be a complex matter.

Perhaps the most obvious disadvantage of this approach is that certain significant industrial dischargers and BATEA sector dischargers may be faced with a sizeable user charge due to their discharge characteristics and/or volume, while others may only have a small charge.

C.2 Uniform Municipal Financing Scheme

The ministry, through the program development process, will be evaluating the benefits and implications of the above-mentioned individual alternatives, and the various combinations of these alternatives. The ministry is particularly interested in obtaining feed-back during the public review of this discussion paper. Whichever financial scheme has been chosen finally, it is imperative that it be adopted by all municipalities in order to maintain a province-wide consistency.

APPENDIX D - INTERIM CONTROL MEASURE

To provide an interim measure of control until the MISA sewer use control program is in place, the ministry has recently issued a revised version of the 1975 model sewer use by-law. Municipalities may use this revised model by-law to strengthen their existing sewer use control programs.

The revised 1988 model by-law contains more stringent provisions to control the discharge of toxic pollutants than the 1975 model by-law. In particular, the revised by-law:

- prohibits the dilution of wastewater to meet discharge limits;
- adds new discharge limits for several metals;
- prohibits the discharge of specific hazardous wastes, waste pesticides and herbicides, and industrial wastes and chemicals listed in Regulation 309 (Environmental Protection Act);
- adds more comprehensive requirements to control stormwater discharges; and
- provides improved administrative procedures to facilitate abatement actions.

The model by-law will not only provide an interim measure of control, it will also prepare municipalities for the requirements under the MISA Sewer Use Control Program. The model by-law and the MISA Sewer Use Control Program are consistent in the following ways:

Effluent Limits

The model by-law contains two types of discharge limits:

(a) prohibited discharges forbiding the discharge of specified hazardous materials, and of pollutants which have an adverse effect on the sewage system, sewage treatment plant employees or the environment; and

(b) discharge limits forbiding the discharge of numerous metals, chlorides, sulphates, fluorides, and cyanide above specified concentration limits.

The MISA Sewer Use Program Regulation will contain the prohibited discharges specified in the Model Sewer Use By-Law. The regulation will provide for the development of the similar type of local discharge limits found in the Model Sewer Use By-Law by municipalities. The methodology used by the municipalities for the development of these local limits will be provided by the Ministry of the Environment and these limits must be approved by the ministry.

Industry Survey

The Model Sewer Use By-Law requires that all industrial dischargers falling into certain categories complete a Waste Survey Report, a copy of which is included as Schedule B1 in the by-law. The completion of these survey reports serves as the basis for the industrial inventory which will be a requirement under the MISA Sewer Use Control Program.

Abatement Programs

The by-law enables the municipality to require industrial dischargers to develop and implement abatement programs to ensure that the dischargers achieve compliance with the by-law limits. The implementation of abatement programs by industrial dischargers will be a requirement of the MISA Sewer Use Control Program.

Spill Reporting

The by-law requires spill reporting by industries to the municipality. Notification to the municipality of spills to the sewer system will be a requirement of the MISA Sewer Use Control Program.

Requirement for Sampling Manhole

The by-law requires the installation of a manhole or suitable sampling facility by the industrial discharger to be used by the municipality for observing and sampling the industrial discharge. These sampling facilities will be needed for both the industrial self-monitoring and the compliance sampling and auditing program to be undertaken by both the municipality and ministry under the MISA Sewer Use Control Program.

Inspection and Sampling of Industrial Facilities

The by-law provides the authority for the municipality to inspect, monitor, and sample industrial dischargers. The municipality will need this authority under the MISA Sewer Use Control Program.

Enforcement

The Model Sewer Use By-Law -- Guidance Manual describes in detail the basic framework for an effective enforcement program for the model by-law. This enforcement program could serve as the basis for the comprehensive enforcement strategy which will be required under the MISA Sewer Use Control Program.